

ABSTRACT OF THE DISCLOSURE

The present invention is directed to an optical lens for capturing, homogenizing and transmitting substantially all of the light emitted by a light source, such as a light emitting diode. The optical lens includes a light transmitting structure having a TIR collector portion, a projector portion and a transition portion disposed between the TIR and projector. The structure is characterized by the length of the transition portion being longer than the focal length of the TIR portion. The light source is disposed within a recess in one end of the TIR portion. The light output from the light source is captured by the TIR portion and homogenized to form a uniform, circular near field image within the transition portion. The projector portion then projects the circular near field image into a uniform, circular far field image. The present invention transmits 85% of the light emitted by the light source and produces a uniformly illuminated circular image in the far field of the device.